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P2 News

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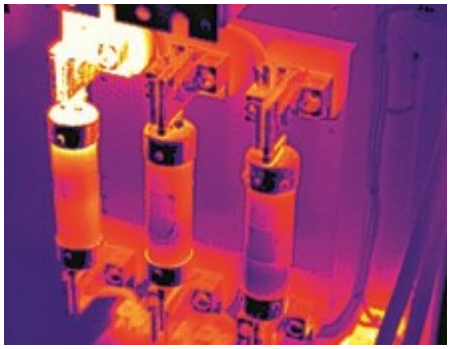
Ultrasound and thermography: highly effective tools for improving energy efficiency

It's difficult to reduce your facilities' energy costs when you don't know *where* the inefficiencies are occurring. There are two technologies that we use heavily in the P2 program that when applied correctly can help a facility identify and quantify losses: ultrasound and infrared (IR) thermography. These methods enable maintenance departments to be proactive about repairing equipment before a breakdown or safety issue arises.

Ultrasound techniques involve using a device that detects ultrasonic frequencies and converts the signal to a decibel within the human hearing range. The user can then pinpoint the source of the sound and make a determination of the cause. This technology can be used to

- locate leaks in steam systems, compressed air systems, heat exchangers, and condensers;
- determine whether valves or steam traps have failed;
- test electrical equipment to identify potential electrical failures such as corona, tracking, and arcing; and
- identify worn bearings and other mechanical failures.

Energy efficiency gains aside, a good ultrasound program can improve employee safety. There is a spectrum of devices available on the market with varying functionality. Units can cost as low as $1,000 and up to $17,000. The units used by P2 Services cost approximately $5,000. In our experience, implementing ultrasound programs usually have a rapid payback.



Infrared thermography allows the user to capture thermal images and analyze heat patterns to identify equipment failures and safety risks. This technology provides a non-contact method of data collection and images can be taken from a significant distance, which makes it appealing in situations in which there is a known safety hazard. Common applications for thermography include

- inspecting HVAC systems and building envelopes for air leaks, insulation quality, and moisture issues;
- assessing electromechanical and process equipment while operational; and
- diagnosing electrical equipment issues and identifying safety risks.

Similar to ultrasound, thermal cameras have a wide range in price, from $200 to $40,000. For typical industrial applications, you should expect to spend between $3,000 and $10,000. Frequently, ultrasound is used in conjunction with thermography. Both technologies provide real data to decision-makers about facility and equipment condition which can lead to gains in energy efficiency and safer working environments.

If you're interested in learning more about these reliability tools and hearing from industry experts, **P2 Services will be hosting a webinar titled "Industrial Energy Efficiency: Useful Tools and Case Studies" on March 1, 2018 at 11 a.m. CST** to discuss these topics in greater detail. Register here.

Upcoming events

January 25 Webinar: Quality Matters - Free Resources to Support Plastic Recycling Programs

February 14 Webinar: Fingerprints of a Pig - Separating Bacon from Dog Food with Energy Analytics

February 26-27 2018 Midwest AWMA Annual Environmental Technical Conference Overland Park

March 1 Webinar: Industrial Energy Efficiency: Useful Tools & Case Studies

April 11-12 Midwest Environmental Compliance Conference Kansas City

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Sign up for SLEIS training

The Iowa DNR Air Quality Bureau will be hosting training sessions for participants to learn how to maintain facility and equipment data and submit air emissions inventories in DNR's online emissions inventory reporting tool called the State & Local Emissions Inventory System (SLEIS). SLEIS can simplify your 2017 air emissions inventory report and ensure it is complete and accurate

Morning and afternoon training sessions will be held on the following dates:

- Wednesday, Jan. 31, 2018 in Cedar Rapids, Iowa
- Thursday, Feb. 1, 2018 in Des Moines, Iowa
- Thursday, Feb 15, 2018 in Council Bluffs, Iowa

To register, visit the eAirServices webpage and click the tab "What Kind of Training is Available?" If you're unable to attend an in-person training event, there are several instructional videos available as well.

November 7 SGP workshop materials now online

To view the materials from the **Fall 2017 Strategic Goals Program Workshop: RCRA Generator Improvements Rule, EPA Fines Determination & Supplemental Environmental Projects**, please visit our workshops webpage. From this page you can download the delivered presentations and supporting tools and resources.

Take our 2017 year-end client survey

We are always looking for constructive feedback on how we can improve services. In case you missed it last month, our year-end survey is still open and will only take a few minutes.

Learn more about our program at www.iowap2services.com.

Please send questions, comments, or newsletter content submittals to Callie Kirkegaard at callie.kirkegaard@dnr.iowa.gov.